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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,837	01/05/2004	Nobuaki Omata	O3020.0288/P288-A	4068

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EXAMINER

TUGBANG, ANTHONY D

ART UNIT	PAPER NUMBER
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3729

DATE MAILED: 04/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/750,837

Applicant(s)

OMATA ET AL.

Examiner

A. Dexter Tugbang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 6,9-11 and 18-30 is/are pending in the application.
- 4a) Of the above claim(s) 6,9-11,21-25 and 27-30 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-20 and 26 is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1/5/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election of Species A, Figures 2A-2E, Claims 18-20 and 26, in the reply filed on 1/14/05 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Claims 6, 9-11, 21-25 and 27-30 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 1/14/05.

### *Priority*

3. This application filed does contain the necessary reference to the prior application, i.e. 10/032,463, as noted in the Preliminary Amendment filed on 1/5/04. However, the current status of the parent nonprovisional application is not referenced, particularly that the parent application matured into U.S. Patent 6,713,944. The current status should be included and the appropriate correction is required.

### *Specification*

4. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions,

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wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

5. The abstract of the disclosure is objected to because the content is not directed to the claimed invention of at least the process of Species A, as emphasized (underlined) above.

Correction is required. See MPEP § 608.01(b).

6. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: A Process of Manufacturing a Strain Element.

### ***Claim Objections***

7. Claims 18-20 and 26 are objected to because of the following informalities.

The following changes are minor in nature and are suggested to correct mere informalities with the claim language. The changes do not affect the scope of the claimed invention.

In Claim 18, the term “like” (1<sup>st</sup> occurrence at line 6 and 2<sup>nd</sup> occurrence at line 8) should be changed to --into--.

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In Claim 19, the phrase of “a strain” (line 1) should be replaced with --the strain--; and the phrases of “a step”, “a crystal”, and “a strain” (each occurrence on line 2) should each be replaced with --the step--, --the crystal--, and --the strain--, respectively.

In Claim 20, the phrase of “a strain” (line 1) should be replaced with --the strain--; the phrases of “a step”, “a coating”, “a titanium” (each occurrence on line 3) should be replaced with --the step--, --the coating--, --the titanium--, respectively; and the phrases of “a crystal” and “a strain” (each occurrence on line 5) should be replaced with --the crystal-- and --the strain--, respectively.

The same problems in Claim 20 also occur in Claim 26.

Appropriate correction is required.

#### ***Allowable Subject Matter***

8. The following is a statement of reasons for the indication of allowable subject matter.

With respect to Claim 18, the prior art does not teach all of the limitations of the claimed invention including forming a crystal film of a strain element having a property of a piezoelectric inverse effect by hydrothermal synthesis on the coating film shaped into a coil; and removing the strain element from the cylindrical mold.

The closest prior art references are Bowers (U. S. Patent 5,112,438) and Japanese Patent Publication JP 1-223785, referred to hereinafter as JP'785.

Bowers discloses forming a metal compound coating 68 on a surface of a cylindrical mold (mandrel 12); shaping the metal coating film on the mold, by etching, into a coil; and removing the metal coating from the cylindrical mold.

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However, Bowers does not teach that the metal compound is titanium or a titanium compound. Also, Bowers does not teach forming a crystal film of a strain element having a property of a piezoelectric inverse effect by hydrothermal synthesis on the coating film shaped into a coil.

JP'785 teaches forming a crystal film of a strain element 17 having a property of a piezoelectric inverse effect on a cylindrical mold 19 and subsequently removing the cylindrical mold from the strain element.

However, JP'785 does not teach forming a coating film of titanium or a titanium compound film on a surface of the cylindrical mold and forming the crystal film onto the metal coating film, or onto any titanium compound film.

In summary, Bowers or JP'785, either alone, or in combination, cannot satisfy all of the limitations of Claim 18. Accordingly, Claims 18-20 and 26 are allowed.

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Japanese Patent Publication JP 6-206787 is cited to show that hydrothermal synthesis is conventional and well known in the art of forming crystal films of piezoelectric properties.

10. This application is in condition for allowance except for the following formal matters.  
To correct all of the issues as noted above.

Prosecution on the merits is closed in accordance with the practice under *Ex parte* Quayle, 1935 C.D. 11, 453 O.G. 213.

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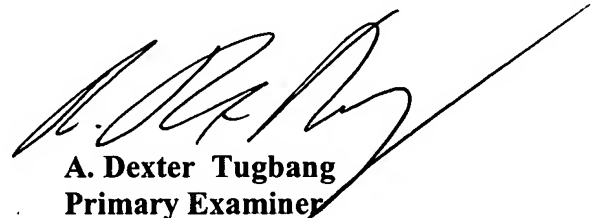
A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Dexter Tugbang whose telephone number is 571-272-4570.

The examiner can normally be reached on Monday - Friday 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**A. Dexter Tugbang**  
**Primary Examiner**  
**Art Unit 3729**

April 17, 2005